

WHAT IS CLAIMED IS:

1. A nonvolatile memory cell comprising:
a plurality of variable resistive elements capable of storing information in accordance with a change of electrical resistances; and
a selection element for selecting the variable resistive elements in common; wherein
one ends of the variable resistive elements are connected each other, and
an electrode of the selection element is connected with one end of each of the variable resistive elements.
2. The nonvolatile memory cell according to claim 1, wherein the variable resistive elements respectively uses an RRAM element whose electrical resistances are changed due to an electrical stress, an MRAM element whose electrical resistances are changed due to a magnetic field, or an OUM element whose electrical resistances are changed due to heat.
3. The nonvolatile memory cell according to claim 1, wherein the selection element is constituted by a MOSFET and the electrode connected with one end of each of the variable resistive elements serves as a drain or source of the MOSFET.
4. The nonvolatile memory cell according to claim 1, wherein the selection element is constituted by a diode element and the electrode connected with one end of each of the variable resistive elements serves as an anode or cathode of the diode element.
5. A nonvolatile semiconductor memory device comprising a memory cell array; wherein the memory cell array is constituted by

arranging a plurality of the memory cell arrays of claim 1 like a matrix in a row direction and column direction and moreover, a word line is included in each row of the memory cells along the row direction, and bit lines extending along a column direction in each column and equal to the number of the variable resistive elements in the memory cells are included.

6. The nonvolatile semiconductor memory device according to claim 5, wherein

the selection element is constituted by a MOSFET in each of the memory cells, and

a drain of the MOSFET is connected with one end of each of the variable resistive elements, one ends of the variable resistive elements not connected with the MOSFET are connected with the bit lines respectively, a source of the MOSFET is connected with a source line, and a gate of the MOSFET is connected with the word line.

7. The nonvolatile semiconductor memory device according to claim 5, wherein the selection element is constituted by a diode element in each of the memory cells, an anode or cathode of the selection diode is connected with one end of each of the variable resistive elements, one ends of the variable resistive elements not connected with the diode element are connected with the bit lines respectively, and the electrode of the diode element not connected with each of the variable resistive elements is connected to the word line.

8. The nonvolatile semiconductor memory device according to claim 5, wherein a hierarchical bit line structure is used in which at

least a plurality of blocks is arranged in the column direction by using the memory cell array as one block, the bit line of each block is used as a local bit line, a local bit line selection transistor for selecting the local bit line is set, and the local bit line is connected to a global bit line through the local bit line selection transistor.

9. The nonvolatile semiconductor memory device according to claim 5, further comprising: a charging circuit which charges each of the bit lines connected to the memory cells selected as those to be read to a predetermined potential before the reading operation of the memory cells.

10. The nonvolatile semiconductor memory device according to claim 5, wherein an equalizing transistor is set between the bit lines connected to the memory cells selected as those to be read in order to charge each of the bit lines to a predetermined potential before the reading operation.

11. The nonvolatile semiconductor memory device according to claim 5, wherein the variable resistive elements of the memory cells respectively use an RRAM element whose electrical resistances are changed due to an electrical stress, an MRAM element whose electrical resistances are changed due to a magnetic field, or an OUM element whose electrical resistances are changed due to heat.